



# Welcome to the Radar & Applications Course (RAC)!

- Lead Instructors
- Course Content
- Objectives and Testing
- NWS Learning Center
- Sources of Information
- WES Usage



Welcome to the Radar & Applications Course (RAC) conducted by the NWS Warning Decision Training Division (WDTD). The primary purpose of the RAC is to train NWS forecasters (meteorologists and hydrologists) on the use of the radar in the forecast and warning decision making process. In this Orientation session we will cover: Lead Instructors, Course Content, Objectives and Testing, the NWS Learning Center, Sources of Information and Warning Event Simulator (WES) Usage.

## Lead Instructors



Each orientation session has a lead instructor assigned to it. Your lead instructor will serve as an extra point of contact for problem solving.

# History of this Course



- WSR-88D Operations Course
  - 1990-97
  - 3.5 week in-residence course in Norman
- Distance Learning Operations Course (DLOC)
  - 1997-2015
  - 100+ hours of distance learning
  - 1 week workshop in Norman
- Radar & Applications Course (RAC)
  - 2015-Present
  - Name change; same format as DLOC

This course has steadily evolved over the years, but the focus has always been on the use of the WSR-88D in operations, particularly warning operations. It began in 1990 as the WSR-88D Operations Course which was taught as a 3 & 1/2 week in-residence course in Norman, Oklahoma. In 1997, it transitioned into the Distance Learning Operations Course (DLOC) and provided a blended learning approach which included web-based training, on-line modules, teletraining, and a 1-week workshop delivered at its conclusion in Norman. The name was changed to the Radar & Applications Course (RAC) in 2015 to provide a more accurate and meaningful description of the course, but it maintains the same format as DLOC.

# Job Task Skills and Knowledge

1. Display and manipulate WSR-88D products using the AWIPS workstation.
2. Create a warning and issue an update to a warning in a timely fashion using WarnGen.
3. Provide a list of WSR-88D equipment groups and their primary subcomponents (or descriptive statements of their function), and correctly identify the function(s) the components perform (or the name or acronym of the unit described).
4. Describe the processes by which the WSR-88D estimates precipitation and the potential error sources involved.
5. Describe the processes by which Doppler radar information is obtained by the WSR-88D.
6. Describe the base data generation process.
7. Identify inherent limitations in pulsed Doppler radar and show how operators can optimize base data quality.
8. Interpret various large and small scale Doppler velocity patterns and their corresponding meteorological conditions.
9. Interpret all Base and Derived products of the WSR-88D, including:
  - a. Specific characteristics of Base and Derived products.
  - b. Strengths and limitations of Base and Derived products.
  - c. Specific operational applications of Base and Derived products.
10. Recognize impacts of sampling resolution on algorithm performance.

11. Describe basic systems operations, communications aspects, and control of system components of the WSR-88D.
12. Identify the fundamental relationships and physical processes that buoyancy and vertical wind shear have on convective storm structure, type, and evolution.
13. Identify environmental characteristics, conceptual models, and radar signatures associated with the spectrum of convective storms and their associated threats (tornado, hail, damaging wind, and flash flooding).
14. Identify contributing factors in both environmental and radar data that impact quality of Mesocyclone and Tornado Vortex Signatures (TVSs).
15. Identify typical 4-D storm-relative velocity signatures associated with stages of mesocyclone core evolution.
16. Identify the role of using WSR-88D data in the severe weather warning process, especially:
  - a. The variables which influence the warning decision.
  - b. Aspects of effective decision making.
  - c. Severe weather warning methodologies.
17. Identify strengths and limitations of using WSR-88D data in winter weather situations.
18. Demonstrate recommended storm-based warning strategies that convey threat area for proper polygon placement for various convective warning situations.
19. Demonstrate recommended strategies for issuing storm-based warning follow-up statements (canceling, continuing, and correcting) for various convective warning situations.

Combine learning and performance objectives addressed in RAC

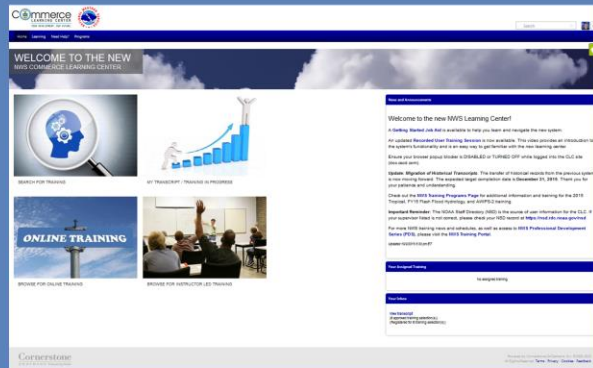
Use these as your map for learning

RAC is a HUGE course! It's very comprehensive and involves over 100 hours of material over the span of about 5 months. It takes a big time commitment from you...and support for that time commitment from your co-workers and management team.

# Learning Management System

## <https://doc.csod.com>

- All online lessons
- Completion status scored via lesson quizzes or LMS tests
  - Except AWIPS Proficiency Test

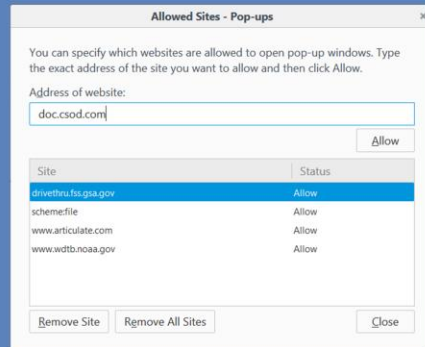


You must complete all exams (except the AWIPS Proficiency Exam) using the LMS in order to receive credit.

Make sure you see the NWS logo...if not, you are NOT in the right place!

# Optimizing LMS Use

- Approved Browsers
- Turn off Popup Blocker



LMS supports all standard browsers. Some unusual behaviors may be seen in each browser. No one browser is preferred over another.

If you have popup blockers on, you will not see the presentations appear when you select them unless you create an exception for the LMS and WDTD web sites.

# Types of RAC Objectives

- Learning Objectives
  - Evaluated via end-of-lesson quizzes
- Performance Objectives
  - Evaluated by your training facilitator and WDTD instructors



Each lesson contains learning and/or performance objectives. A learning objective is an outcome statement that captures specifically what knowledge, skills, and attitudes learners should be able to exhibit following instruction. We assess it in RAC via an end-of-lesson quiz.

A performance objective is a statement that clearly describes the behavior or performance the learner is expected to exhibit as a result of training. We assess it in RAC via AWIPS WES exercises by your training facilitator, the AWIPS Proficiency Exam by your training facilitator, and at the RAC Workshop Lab by WDTD instructors.

# Types of RAC Training Modes

- Web modules
  - Completed asynchronously
  - Self guided (no audio)
  - Instructor guided (with audio)
- Live, Instructor-Led Tele-training Sessions (like this!)
  - You must pre-register & take at the scheduled time
- AWIPS/WES exercises



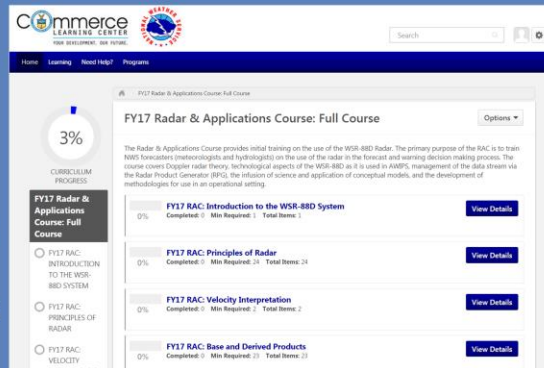
RAC presents training material in various ways. Some are self-paced modules on the internet. Others are recorded “Articulate” modules where the instructor’s voice is paired with the relevant images. Another method is via live teletraining session (like this one) where you and your classmates go through material together with a WDTD instructor. You must pre-register for each teletraining session via your LMS Curriculum Path and take it at the scheduled time.

Let’s take a brief look at each RAC topic.

# RAC Curricula

<https://doc.csod.com/>

- Take lessons
- Register for Teletraining
- Register for Workshops
- Track your progress
- AWIPS Fundamentals will be added after course is released with instructions to follow



On the LMS RAC Page

Your RAC Curriculum is your path to course completion. Use it to take on-line courses, register for teletraining sessions and the Workshop, and monitor your progress through the curriculum.

# RAC Exams

- Must be completed on the LMS
- Taken at your office
- Passing score is 70-80%



 **NOTE:** *Teach from slide.*

The honor system applies here.

## AWIPS Fundamentals Proficiency Test

- Demonstrate AWIPS radar and warning proficiency
  - Student will see Assignment in LMS
  - Administered by training facilitator
- Score of at least 70% required
  - Retake at discretion of training facilitator
  - Training facilitator: Scan and email Michael.A.Magsig@noaa.gov
  - WDTD marks test “complete” in LMS
- ***Must complete before the Storm-Based Warning Fundamentals Workshop Primer & Workshop***

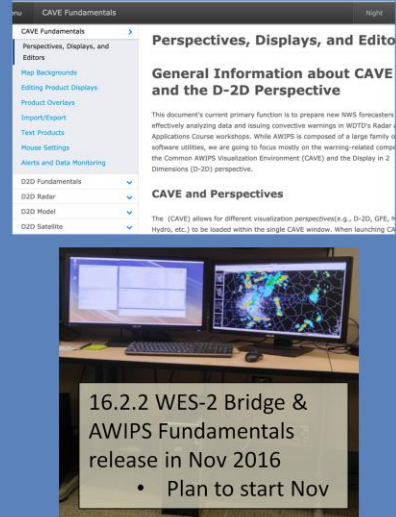


You will see the AWIPS Proficiency Exam listed as an assignment in the LMS. It is a timed, paper exam administered by your training facilitator. He/she will observe your performance of specific AWIPS tasks. You will need to achieve a passing score of at least 70% on the exam to receive credit. You may retake the exam at the discretion of your training facilitator. Once complete, your training facilitator must send the graded exam back to WDTD (scan and email fine or regular mail). We will then mark the test “complete” in the LMS.

You must complete the AWIPS Proficiency Exam before the Storm-Based Warning Fundamentals Workshop Primer and the Workshop.

# Topic: AWIPS 16.2.2 Radar/Warning Fundamentals

- Standalone course
  - Prepares you for workshop simulations & primer
- Delivery Method:
  - VLab web pages & job sheets (+ PDF)
    - Use live 16.2.2 AWIPS & WES-2 Bridge
  - WES-2 Bridge practice videos
  - Proficiency Test
- Prerequisite: RAC Orientation
- Expected Completion Time: 15-30hrs



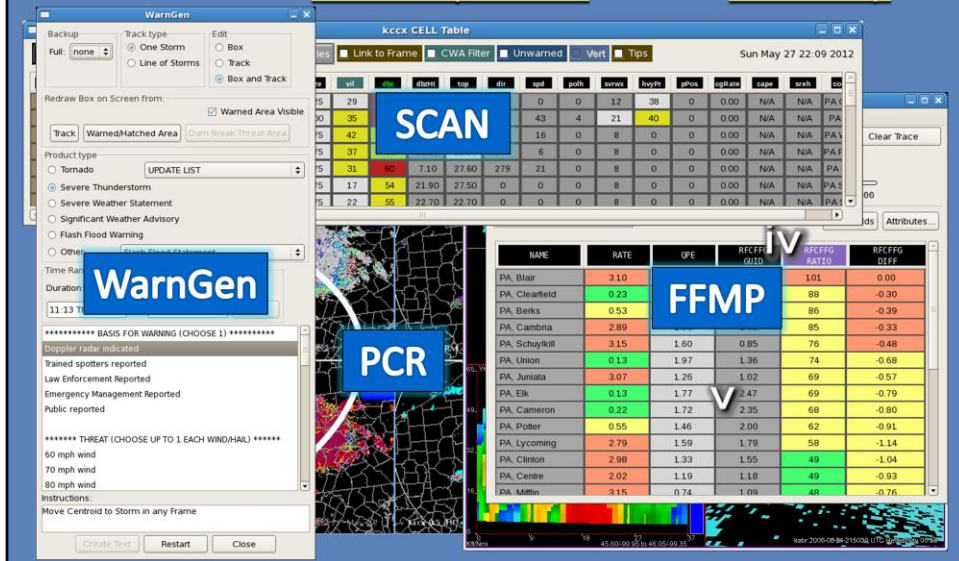
AWIPS fundamentals is a standalone course that covers developing fundamental radar and warning proficiency with AWIPS-2. You will need this when you start implementing RAC training into the RAC warning decision making exercises and simulations in the workshop primer and workshops.

The delivery method is a blend of VLab and WES-2 Bridge. Most of the VLab web pages and job sheets are taken on the live AWIPS, but some exercises requiring data or warnings will require WES-2 Bridge. The practice videos must be taken on the 16.2.2 WES-2 Bridge which is coming out in early Nov of 2016.

You can start AWIPS Fundamentals in November 2016 after the RAC Orientation is complete and the materials have been shipped out. Expect it to take 15-30 hours. In the future you will likely not have much time for AWIPS training, so this is a unique opportunity to develop a deep and solid foundation of AWIPS needed for warning decision making.

## Complete All WES Exercises

### Do these before Storm-Based Warning Fundamentals Workshop Primer and the Workshop!



The WES Exercises cover AWIPS applications that you will use in warning decision making in your job.

**NOTE:** Click five (5) times to reveal tools.

It is important for you to develop a basic proficiency with these different AWIPS tools even if your current office doesn't use all of them because you will likely use some of these at different offices in your career.

You must develop a basic proficiency with these before you take the workshop primer and before you arrive at the RAC Workshop.

## AWIPS Fundamentals and WES Exercises November 2016 Release

1. AWIPS Proficiency Test (Training Officers Only)
2. Disks containing Weather Event Simulator 2 Bridge, cases, videos, and instructions
  - 16.2.2 WES-2 Bridge upgrade required for RAC



The AWIPS Fundamentals and WES exercises will be shipped out in early November. Inside that shipment will be the AWIPS Proficiency Test and 16.2.2 WES-2 Bridge, cases, and other support materials. Because 16.2.2 is the baseline for this year's RAC, the 16.2.2 WES-2 Bridge is a requirement for RAC.

This will still give you 3-4 months to complete the AWIPS components of the course before workshops begin in Jan/Feb.

# Topic: Introduction to the WSR-88D System

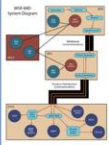
- Overall system description covering equipment groups
- Delivery Method
  - Self guided web module
- Prerequisite
  - This orientation ILT
- Completion Time
  - 1 hour

RAC Introduction to the Weather Surveillance Radar 1988 Doppler (WSR-88D)

**Introduction**

Objectives  
System Requirements  
System Diagrams  
1. Radar Data Acquisition (RDA) Unit  
2. Wideband Communications  
3. Radar Product Generator (RPG)  
4. Master System Control Function (MSCF)  
5. Product Distribution Communications  
6. User Systems  
Acronym Listing

Click below to view full-size graphic:



**Introduction**



Welcome to the "RAC Introduction to the Weather Surveillance Radar - 88 Doppler (WSR-88D)" web module.

**Note to NWS Staff:**

To receive credit for the RAC Introduction to the WSR-88D Training, you must login to the [NWS Learning Center](#) and complete the quiz in order to receive completion credit on your transcript!

The WSR-88D system contains several data processing, control, and display components. Some of these units also employ multiple subcomponents. NWS forecasters should have a basic understanding of the WSR-88D system in order to effectively produce the best quality data. This understanding includes knowledge of the components (and subcomponents), their relationship to each other, and the flow of data through the system. This lesson describes the five equipment (or component) groups and their primary subcomponents, as well as some of the user systems that visualize WSR-88D output. These six different groups are:

- Radar Data Acquisition Unit (RDA),
- Wideband Communications between the RDA and The Radar Product Generator,
- Radar Product Generator (RPG),
- Master System Control Function (MSCF),
- Product Distribution Communications, and
- User Systems (e.g., Advanced Weather Interactive Processing System, Open Principal User Processor).

Introduction to the WSR-88D System is a self-guided web module. The LMS will have instructions about the course, a launch page to access the web module, and then the quiz.

👉 **NOTE:** Teach from slide.

# Topic: Principles of Meteorological Doppler Radar

- How the WSR-88D collects, quality controls, and processes data into products
- Proceed through the lessons in order
- Prerequisite
  - Introduction to the WSR-88D System topic
- Delivery Method
  - Instructor guided web modules
- Completion Time
  - 7 hours



 **NOTE:** Teach from slide.

## Principles of Doppler Radar (Cont'd)

WSR-88D Fundamentals (6 parts)	Instructor Guided Web Module	60 min
Radar Sampling Issues	Instructor Guided Web Module	45 min
VCP Selection	Instructor Guided Web Module	25 min
Dynamic Scanning	Instructor Guided Web Module	25 min
RPG Management	Instructor Guided Web Module	25 min
Legacy Base Data Generation	Instructor Guided Web Module	10 min
Super-Res Base Data Generation	Instructor Guided Web Module	15 min
Dual-Pol Base Data Generation	Instructor Guided Web Module	15 min
Clutter Filtering	Instructor Guided Web Module	15 min
Range Unfolding	Instructor Guided Web Module	10 min
Velocity Dealiasing	Instructor Guided Web Module	20 min
Data Recombination at the RPG	Instructor Guided Web Module	20 min
Dual-Pol Preprocessing	Instructor Guided Web Module	15 min
Base Data Quality	Instructor Guided Web Module	15 min
Rainfall Estimation	Instructor Guided Web Module	10 min
PPS Algorithm	Instructor Guided Web Module	20 min
Dual-Pol QPE Algorithm	Instructor Guided Web Module	20 min
PPS & QPE Comparison	Instructor Guided Web Module	20 min
Snow Accumulation Algorithm	Instructor Guided Web Module	20 min

 **NOTE:** Teach from slide.

# Topic: Velocity Interpretation

- How to interpret both large and small scale velocity patterns
- Prerequisite
  - Principles of Meteorological Doppler Radar
- Delivery method
  - Instructor guided web modules
- Completion Time
  - 1.5 hours



 **NOTE:** Teach from slide.

## Topic: Base and Derived Products

- Covers products and the algorithms that generate them
- Prerequisites
  - Preceding topics
- Delivery method
  - Instructor guided web modules
  - Instructor Led Training (ILT) session
- Completion time
  - 10 hours



 **NOTE:** Teach from slide.

## Topic: Base and Derived Products (Cont'd)

Introduction and Base Products	Instructor Guided Web Modules	2.5 hrs
Reflectivity Derived Products	Instructor Guided Web Modules	2.0 hrs
Velocity Derived Products	Instructor Guided Web Modules	1 hr
Dual-Pol Derived Products	Instructor Guided Web Modules	1 hr
Precipitation Estimation Products	Instructor Guided Web Modules	1.5 hrs
Products Review & Case Study	Teletraining	2.0 hrs

Students must register for Teletraining portion

The lessons in this topic are organized into sections.

The final lesson “Products Review & Case Study” is an Instructor-Led Teletraining session. You must pre-register in the LMS for one of the sessions.

# Topic: Winter Weather

- Precipitation type analysis
- Accounting for errors in Snow Accumulation Algorithm (SAA)
- Prerequisites
  - Base and Derived Products Topic
- Delivery method
  - Instructor guided web modules
- Completion Time
  - 1 hour



 **NOTE:** Teach from slide.

## Topic: Convective Storm Structure and Evolution

- Thunderstorms and all things severe
- Prerequisites
  - Skew-T Mastery (Comet module)
  - Hodograph Essentials for Convective Storms
  - Multi-Radar/Multi-Sensor (MRMS) Products Course
  - Operational Severe Weather Diagnostics Parameters
- Delivery method
  - Instructor guided web modules
  - Applied Performance Drill presentations
  - Instructor Led Training (ILT) session
- Completion time
  - 12 hours



The Convective Storm Structure and Evolution topic discusses thunderstorms and all things severe including wind, hail, tornado, and flash flood! Including fundamentals of shear and buoyancy, recognition and interpretation of severe storm signatures.

This topic also contains a set of applied performance drill presentations where you get to view the practical side of how this topic is applied. You will apply these drills in the WES exercises and the workshop.

👉 **NOTE:** *Teach from slide.*

# Topic: Flash Floods

Covers concepts, products and tools useful for flash flood forecasting and decision-making

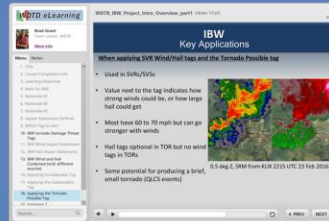
- Prerequisites
  - Preceding topics
- Delivery method
  - Instructor guided web modules
- Completion time
  - 2 hours



 **NOTE:** Teach from slide.

# Topic: Storm-Based Warning Fundamentals

- Prerequisites
  - Convective Storm Structure and Evolution topic
  - AWIPS Fundamentals only for Workshop Primer
- Delivery Method
  - Instructor guided web modules
  - Workshop Primer with WES-2 Bridge
- Completion time
  - 7 hours



 **NOTE:** Teach from slide.

## Topic: Storm-Based Warning Fundamentals (Cont'd)

Lesson Title	Time
TOR for isolated Tornado Threat	10 min
TOR for QLCS Tornado Threat	3 min
TOR/SVR for Backbuilding (Training Storms)	4 min
SVR for Pulse Storms (Low Shear)	4 min
SVR for Squall Line Systems	4 min
Storm-Based Warning Special Considerations	18 min
Two TORs in Close Proximity	5 min
Non-Linear Motion	21 min
Merging Storms	4 min
Limiting Number of Counties in Warnings	20 min
Impact-Based Warnings (2 modules plus 5 exercises)	2 hours
Storm-Interrogation Primer (Workshop Primer)*	3-4 hrs

Here is the breakout for this topic. Please note the “Storm-Interrogation Primers (workshop primer)” should be done right before the Workshop. It builds on the use of tools/applications that you learned in the WES Exercises, but puts these together in a “warning decision” type of frame work. It’s a good refresher of things you should have already gone through, and a good “primer” for getting you into the warning frame of mind (which we want you to have at the workshop!)

# Workshop Primer Practice

- Prepare for week of simulation nirvana
- **Practice** Convective Storm Structure and Evolution's Applied Performance Drills on WES (3-4 hrs)
- **When:** Week before the workshop (or as near as you can)
  - Release in Nov/Dec 2016
- Any problems:
  - [Michael.A.Magsig@noaa.gov](mailto:Michael.A.Magsig@noaa.gov)
  - 405-325-2995



To help prepare you for the week of simulation nirvana in the workshop, you will practice the Convective Storm Structure and Evolution's Applied Performance Drills on the WES and become familiar with some of the AWIPS procedures we will be using in the workshop.

The presentation on WES will step you through practicing specific drills where a video will play on one monitor and you will practice the same steps on the other monitor.

The workshop primer should be completed the week before the workshop, so you are prepared to make the most out of the workshop.

The Workshop Primer will be released in Nov/Dec 2016, well before you need to take it.

Mike is really committed to making this an effective exercise, so do not hesitate to contact him if you have any questions or problems setting it up, running the simulation, or have some general questions about the tools or the decision making. He wants to hear from you!

# RAC Workshop

- Sessions Include:
  - Warning Decision and You
  - Warning Methodology
  - Mini-Scenarios
  - Flash Flood Forecasting
  - Flash Flood Lab
  - Warning Issuance
  - Simulation Scenarios
  - Communication and Team Dynamics
  - Hazardous Weather Testbed (HWT) Tour
  - Storm Prediction Center (SPC) Tour
  - Impact-Based Warnings
  - Winter Weather Lab



The Workshop is the culmination of RAC. It brings together everything you've learned, and more, into a laboratory and simulation environment. Most of your time at the workshop will be in the lab. Typically, you'll work with two (2) other forecasters and go through events in displaced real-time together. Sessions include:

👉 **NOTE:** *Teach from slide.*

# RAC Workshop

## Prerequisites

- All distance learning must be completed before the Workshop including:
  - All lesson quizzes
  - AWIPS Proficiency Exam
  - WES Exercises
  - Workshop Primer
- Arrive at workshop “warning ready” including:
  - AWIPS “knob-ology”
  - WarnGen fundamentals



You must complete all distance learning components before you may attend the workshop including: Lessons quizzes, AWIPS proficiency exam, WES exercises, and the Workshop Primer. Students must arrive at the workshop “warning ready” including AWIPS “knob-ology” and WarnGen fundamentals. We want you to get the basics out of the way so we can work on your higher order “warning forecaster” skills at the workshop.

## RAC Workshop Delivery Method

- In-residence at the National Weather Center (NWC)
- Four Workshops:
  - Jan 30 - Feb 03, 2017
  - Feb 13-17, 2017
  - Feb 27 – March 3, 2017
  - March 6-10, 2017
- Registration opens Oct 20, 2016
  - If only **one** week works for you, register early!
- Completion time
  - 40 hours (Monday-Friday)
  - Most students will not be able to fly home until Saturday!



 **NOTE:** Teach from slide.

The course will not end until Friday at 5 pm. Thus, due to flight schedules, most students will not be able to fly home until Saturday morning.

## RAC Workshop Lodging

- Lodging
  - National Center for Employee Development (NCED) Conference Center and Hotel
  - Provide WDTD with your travel info when you register for a workshop using the LMS



Workshop lodging will be at the National Center for Employee Development (NCED) Conference Center and Hotel located three miles east of the National Weather Center (NWC) in Norman. The facility is run Marriott International. Most of the hotel's guests are postal service employees in-training as students in the NCED Training Facility on the same grounds across the street. You will be asked to provide WDTD with your travel information when you register for a workshop in the RAC curriculum section of your NWS LMS account.

## RAC Summary

### *Full vs Short Course*

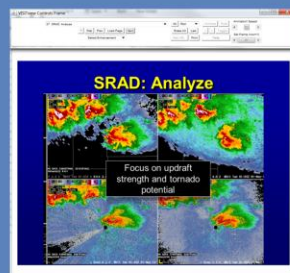
Orientation	Full, Short
Introduction to the WSR-88D	Full, Short
Principles of Doppler Radar	Full, Short
Velocity Interpretation	Full, Short
Base and Derived Products	Full, Short
Winter Weather	Full
Convective Storm Structure and Evolution	Full
Storm-Based Warning Fundamentals	Full
Workshop (Norman, OK)	Full

*Note: "Short" course completion deadline is March 25, 2016*

Note that most students have been assigned the "Full" version of the course, but a few have been assigned the "Short" version of the course. Deadline for the full course is before the start of your workshop. Deadline to complete the short version of the course is March 25, 2017.

# Teletraining Overview

- Internet-based GoToWebinar
- No pre-downloading necessary
- Audio
  - Same number for all sessions:
    - 1-866-564-5812
    - passcode 2094167#
    - Mute phone ( No “Hold”)
- E-mail notification before each section
  - Reminders/Changes



START DATE	END DATE	SESSION ID	LOCATION	TRAINING NUMBER	HOURS	LOCATION	SEATS AVAILABLE	WAITLISTED	DETAILS	REQUEST
11/16/2015	11/16/2015	RAC FY18 Orientation Session 1	CST	2634	1 Hours 0 Min	WOTO Webinar > WOTO	5	0		<a href="#">Request</a>
11/17/2015	11/17/2015	RAC FY18 Orientation Session 2	CST	2635	1 Hours 0 Min	WOTO Webinar > WOTO	10	0		<a href="#">Request</a>
11/18/2015	11/18/2015	RAC FY18 Orientation Session 3	CST	2636	1 Hours 0 Min	WOTO Webinar > WOTO	8	0		<a href="#">Request</a>
11/19/2015	11/19/2015	RAC FY18 Orientation Session 4	CST	2637	1 Hours 0 Min	WOTO Webinar > WOTO	14	0		<a href="#">Request</a>
11/23/2015	11/23/2015	RAC FY18 Orientation Session 5	CST	2638	1 Hours 0 Min	WOTO Webinar > WOTO	10	0		<a href="#">Request</a>
11/24/2015	11/24/2015	RAC FY18 Orientation Session 6	CST	2672	1 Hours 0 Min	WOTO Webinar > WOTO	10	0		<a href="#">Request</a>

Teletraining simply means we train live over the internet, like what you're doing now. We'll do that using GoToWebinar which requires you to register in advance. If you haven't received an e-mail from the CLC within 24 hours after registration, please contact WDTD. We strongly recommend that you use the registration information in the CLC e-mail to reserve your spot with GotoWebinar as soon as possible, not the day of the webinar. Your "Approval" message from the NWS Learning Center will have information about how to get registered. After this Orientation teletraining session is over, you will have two more: One at the end of the Based and Derived Products topic and another at the end of the Convective Storm Structure and Evolution Topic.

# Teletraining Protocol

- Dedicate time for your session
  - *“Do not Disturb!”*
- Use headsets
  - *Keep phones muted, not “hold”*
- Expect interaction
  - *Direct questions*
  - *Quiz questions*
  - *Annotate features*



 **NOTE:** *Teach from slide.*

It's fun and interactive. Your training facilitator will help you set things up so that you have smooth sailing.

# Facilitator Actions

- Coordinate scheduling of training events
  - No office conflicts
- Monitor progress
- Provide time/support
  - reach out to WDTD if necessary

Tue 11/17	Wed 11/18	Thu 11/19
10:00am-2015 Fall CLO Symposium (BO)		
9:30 - 9:58 1 - Hazard Services documentation (MIA, BS)		
10 - 11 RAC Workshop Meeting	10 - 11:30 RAC Workshop Meeting #7	10:30 - 11:30 Project Leader's Meeting
10:30 - 11:30 Brown Bag Lunch	11:30 - 11:58 ITC Meeting (BO)	
	11:30 - 11:58 OOD Dev Call (AC)	
	11:30 - 12 Storm of the Month	
	11:30 - 12 Storm of the Month	
	12 - 12:30 S - RACC (MIA)	
12:30 - 1:00 RAC Orientation Session	12:30 - 1:00 RAC Orientation Session #2 (MIA)	12:30 - 1:00 RAC Orientation Session #3 (MIA)
		1:00 - 1:30 Training Ev
		1:30 - 2:00 Training Ev
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- Coordinate scheduling of training events
  - No office conflicts
- Monitor progress
- Provide time/support
  - reach out to WDTD if necessary

[illegible]

Your training facilitator plays a critical role. He/she will help you to:
 

- coordinate the scheduling of training events,
- monitor your progress and provide time and support,
- reach out to WDTD if necessary.

 Your training facilitator will be your partner in this. We all want you to have a great training experience.

# More Facilitator Actions

- Install & test WES Exercise materials
  - Testing instructions provided with AWIPS Fundamentals
- Proctor AWIPS Proficiency Test in advance of Workshop

WSR-88D DISTANCE LEARNING OPERATIONS COURSE  
WARNING DECISION TRAINING BRANCH  
AWIPS OPERATOR PROFICIENCY EXAM...EVALUATOR  
VERSION

STUDENT \_\_\_\_\_ DATE \_\_\_\_\_  
EVALUATOR \_\_\_\_\_ TEST SCORE **100%**

Instructions:

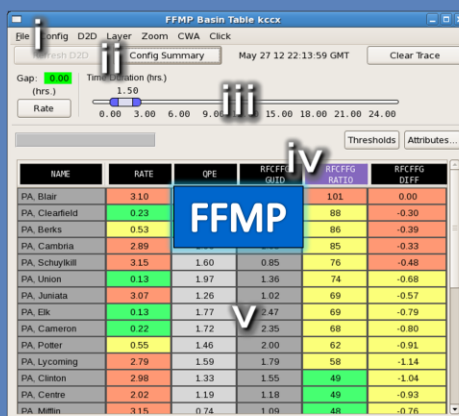
- The following exam contains 40 questions that require the student to perform certain operations and/or make appropriate verbal responses. Many questions are worth 1 or 2 points each, with the rest worth more. There are a total of 100 possible points. The exam should be completed in 100 minutes or less. Please give students a few minutes to read over the instructions before beginning the exam.
- The student will use an AWIPS D-2D workstation (with at least OB9.0 loaded), preferably in practice mode, to perform all functions. The Topic 1 Student Guide, the AWIPS User Manual, personal notes or pre-saved office procedures on the AWIPS workstation are not allowed. You may review items on the exam with the student **before the exam**, but **during the exam** please **do not** provide any assistance to the student.
- You are the evaluator, and responsible for administering this test. Keep track of time for the student. You may clarify questions, but please **do not give hints or let them know if their answer is right or wrong** unless, in your opinion, their wrong answer prevents them from correctly answering subsequent questions. In these situations, the student must acknowledge that they have made their final attempt prior to you.

Facilitators must also install and test the WES exercise materials and proctor the AWIPS Proficiency Test in advance of the Workshop. Testing instructions will be provided with AWIPS Fundamentals.

*It is important for the facilitator to verify the WES is set up and works. We will have guidance provided with the AWIPS Fundamentals release.*

## Be “Warning Ready”...for anything!

- RAC will expose you to new phenomena and tools
- Will likely be used in your career
- Thus, it's to your benefit to take ownership over ALL the material in this course.



RAC will expose you to a wide variety of meteorological phenomena and tools, many of which may be new to you. For example, you may be at an office that experiences very little severe weather, very little winter weather, or one that doesn't use the Flash Flood Monitoring and Prediction (FFMP) tool. The fundamentals you will learn as a new NWS Meteorologist taking RAC will likely be used later in your career, probably within the next few years as you advance on to other offices. Thus, it's to your benefit to take ownership over ALL the material in this course.

# Important Dates

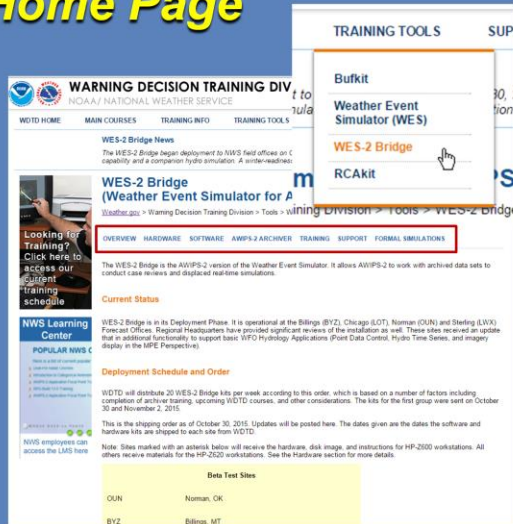
Event	Date	Time
Base & Derived Products ILT registration opens	10/20/2016	
Convective Storm Structure and Evolution ILT registration opens	10/20/2016	
Workshop registration opens	10/20/2016	
Orientation ILT #1	10/20/2016	18Z
Orientation ILT #2	10/21/2016	19Z
Orientation ILT #3	10/24/2016	16Z
Orientation ILT #4	10/25/2016	18Z
Orientation ILT #5	10/26/2016	19Z
RAC Begins	10/27/2016	
AWIPS Fundamentals/WES Release	Nov 2016	
Course materials arrive on station	11/1/2016	
Base & Derived Products ILT, session 1	11/15/2016	15Z
Base & Derived Products ILT, session 2	11/29/2016	19Z
Workshop Primer Release	Nov/Dec 2016	
Base & Derived Products ILT, session 3	12/1/2016	15Z
Base & Derived Products ILT, session 4	12/6/2016	21Z
Convective Storm Structure and Evolution ILT, session 1	12/8/2016	16Z
Base & Derived Products ILT, session 5	12/15/2016	19Z
Convective Storm Structure and Evolution ILT, session 2	12/20/2016	19Z
Convective Storm Structure and Evolution ILT, session 3	1/10/2017	16Z
Convective Storm Structure and Evolution ILT, session 4	1/17/2017	20Z
Convective Storm Structure and Evolution ILT session 5	1/26/2017	19Z
Workshop registration closes	1/9/2017	
Workshop 1	01/30/2017 to 02/03/2017	
Workshop 2	02/13/2016 to 02/17/2017	
Workshop 3	02/27/2016 to 03/03/2017	
Workshop 4	03/06/2016 to 03/10/2017	

 **NOTE:** Teach from slide.

# Sources of Information

## RAC Home Page

- Course news
- Teletraining
- Schedules
- Help
- WES-2 Bridge support
  - Dale.Morris@noaa.gov
  - Alexander.Zwink@noaa.gov



<http://www.wdtb.noaa.gov/courses/rac/>

The RAC Home Page is a source for all kinds of info for you. Although the course outline has links to lessons on our WDTD web site and the LMS, you must access the lessons from your RAC curriculum on the LMS to receive credit.

## RAC Support

- [nws.wdtd.rachelp@noaa.gov](mailto:nws.wdtd.rachelp@noaa.gov)
  - Contacts all WDTB RAC instructors
- Or, contact one of the instructors listed directly

There are three sources of RAC support: Your local facilitator, the RAC e-mail help list, or feel free to contact WDTD lead instructors directly.

Bobby will also send status updates via e-mail.

# Questions?

- We look forward to working with you!



☞ **NOTE:** Teach from slide.

☞ **NOTE:** Ask each office individually if they have any questions.